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| 10/564,980 | 01/18/2006 | Kaoru Yamada | 2006-0044A | 6129 |

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| EXAMINER | |
|---|---|
| BOZADJIAN, GEORGE D | |

| ART UNIT | PAPER NUMBER |
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| 1792 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/564,980 | YAMADA ET AL. | |
| | Examiner | Art Unit | |
| | GEORGE D. BOZADJIAN | 1792 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *December 21, 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-61* is/are pending in the application.

4a) Of the above claim(s) *19-27 and 31-61* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18, and 28-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 January 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/18/2006 and 9/11/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election of Group I, claims 1-18 and 28-30, in the reply filed on December 21, 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### *Priority*

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-9, 15-16, and 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by MIYAWAKI MAMORU (Detailed Description of Japanese Publication Number JP 09-270412 A, hereafter '412).

Claims 1 and 28: '412 teaches a substrate processing apparatus (1) for processing a substrate (3) while

supplying a fluid (fluid is supplied via 2 and 11) to the substrate [Dwg. 1; parag. 0022, lines 1-3. The apparatus is used for cleaning wafers by supplying fluids], said substrate processing apparatus comprising:

a substrate holder (4) for holding and rotating the substrate [Dwgs.1-2; parag. 0022, lines 3-6; parag. 0032. The apparatus has a slewing mechanism that rotates the wafer]; and

a holder suction unit (24) for sucking the fluid from said substrate holder and substrate [Dwgs. 1-2; parags. 0023, 0030. The holder includes a suction opening which is capable of sucking fluid from substrate holder].

In regards to the use of the holder and suction unit, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations – *Ex parte Masham,* 2 USPQ2d 1647 (1987).

Claims 2 and 29: A substrate processing apparatus according to claims 1 and 28, further comprising a periphery suction unit for sucking the fluid from a peripheral portion of the substrate [The suction unit described and cited above is a periphery suction unit located at or disposed closely to the peripheral portion of the substrate].

Claims 3 and 30: A substrate processing apparatus according to claims 1 and 28, wherein said substrate holder is brought into contact with an edge portion of the substrate so as to hold and rotate the substrate by utilizing friction between said substrate holder and the substrate [As described and cited above, the substrate is placed on the substrate holder, thus result in into contact. Additionally, any movement made or generated between parts, in this case substrate and substrate holder, creates friction. See case law

above regarding the use of the holder].

Claim 4: A substrate processing apparatus according to claim 1, wherein said substrate holder has a clamp portion which is brought into contact with an edge portion of the substrate [Dwgs. 1-2; parags. 0022, 0023. Part 4 holds the substrate at the edge in a claming manner as can be seen in the Dwgs. cited], and said holder suction unit is disposed closely to said clamp portion so as to suck the fluid which has adhered to said clamp portion [as cited above, the suction unit is disposed closely to said claim portion. See *Ex parte Masham* above regarding use of the suction unit].

Claim 5: A substrate processing apparatus according to claim 1, wherein said holder suction unit communicates with a vacuum source [see citations above. Parags. 0023-0025 teaches that a pump is used as absorption means to suck the fluid. The pump is a vacuum source for drawing objects in its path].

Claim 6: A substrate processing apparatus according to claim 1, further comprising a holder cleaning unit (2) for supplying a cleaning fluid to said substrate holder [Dwgs. 1-2; Parag. 0022, lines 2-3. Cleaning unit 2 supplies fluid to substrate and substrate holder].

Claim 7: A substrate processing apparatus according to claim 6, wherein said holder suction unit is disposed at the forward of said holder cleaning unit in a rotational direction of said substrate holder [Dwgs. 1-2; As can be seen from Dwgs. 1-2, the holder suction unit 24 is placed at the forward of holder cleaning unit 2 by being at the "front" side of the cleaning unit, and in a rotational direction].

Claim 8: A substrate processing apparatus according to claim 1, further comprising at least one gas supply nozzle (11) having a gas supply mouth (the open end of the nozzle

11 is the mouth) through which a drying gas is supplied to the substrate [Dwgs. 1-2; parag. 0022, lines 4-6].

Claim 9: A substrate processing apparatus according to claim 8, wherein the drying gas is supplied perpendicularly to a surface of the substrate [Dwg. 1 shows the nozzle opening (drying gas) is positioned perpendicular to the substrate's surface, thus making it capable of supplying it in a perpendicular manner].

Claim 15: A substrate processing apparatus according to claim 8 wherein a flow rate of the drying gas supplied from said gas supply nozzle is controlled by changing a pressure of the drying gas to be supplied from said gas supply nozzle ['412 teaches the substrate processing apparatus as described and cited above, having a gas nozzle that ejects gas through the opening and onto the substrate's surface. As for the flow rate being controlled by altering the pressure of gas supplied, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed structural limitations – *Ex parte Masham,* 2 USPQ2d 1647 (1987)].

Claim 16: '412 teaches a substrate processing apparatus according to claim 1 wherein the fluid is a liquid, and comprises a holder suction unit. In regards to how the suction unit is used, whether before or after the liquid is supplied, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations – *Ex parte Masham,* 2 USPQ2d 1647 (1987). Claims directed to

apparatus must be distinguished from prior art in terms of structure rather than function – *In re Danly,* 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over '412 as applied to claims 1 and 8 above, in view of Mertens et al. (U.S. Publication Number 2002/0130106, hereafter '106) and further in view Olgado et al. (U.S. Publication Number 2003/0129850, hereafter '850).

Claims 10-11: '412 teaches all the limitations of claim 1 above. It teaches a substrate processing apparatus having a gas supply unit [see citations above]. It does not teach plurality of gas nozzles. However, '106 teaches an apparatus for removing fluids from substrates [Title; Abstract] by using at least one gas nozzle, or a plurality of gas nozzles to supply pressurized gas

to the substrate's surface to remove the liquid at higher contact angles and still maintain a wet substrate surface outside the drying boundary [Fig. 1; parags. 0017 and 0052]. '106 does not teach a controller system to regulating gas timings and gas flows. However, '850 teaches controllers (54 and 748) used to regulate gas flows from the gas supply [parag. 0063]. Therefore, one of ordinary skill in the art at the time the invention was made would have replaced the existing one nozzle of '412 with the plurality of nozzles of '106, and placing the regulating controller of '850, to have regulated the gas supply in order to have removed the liquid at higher contact angles while maintaining the wetness. As for setting the gas supply start and stop timings, and the flow rates, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations – *Ex parte Masham,* 2 USPQ2d 1647 (1987). Claims directed to apparatus must be distinguished from prior art in terms of structure rather than function – *In re Danly,* 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA).

8. Claims 12-14: '412 teaches all the limitations of claim 8 above. It teaches the substrate apparatus having a gas nozzle on an arm (arm between the nozzle 11 and 12) [Dwg. 1]. It does not teach the arm being movable. However, '106 teaches the gas nozzle placed on a movable arm (3) that can be guided between the centre and he edge of the substrate to ensure that each part of the substrate is treated [Figs. 1; parags. 0017, 0050 and 0056]. Therefore, one of ordinary skill in the art at the time the invention was made would have replaced the arm of '412 with that of '106 to have made it movable in order to have treated each part of the substrate. As for the movement speed, moving the arm from one location to another alters the speed. Regarding supplying and not supplying gas along the substrate, it has been held that a recitation with respect to the manner

in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations – *Ex parte Masham,* 2 USPQ2d 1647 (1987). Claims directed to apparatus must be distinguished from prior art in terms of structure rather than function – *In re Danly,* 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA).

9. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over '412 as applied to claim 1 above, in view of Matsukawa et al. (U.S. Patent Number 5,964,954, hereafter '954).

'412 a substrate processing apparatus wherein static electricity is formed during the operation of the substrate processing apparatus by friction of spraying liquids and gases, and by reaction caused during removal of foreign materials from the substrates [parags. 0028-0029, 0038]. It does not teach the holder suction unit being a conductive portion and is grounded. However, '954 teaches a substrate cleaning apparatus [Title, Abstract] having a conductive tape wound around a supply pipe which is grounded to a frame of an insulating material to prevent charging of the solution that is supplied onto the wafer to prevent adhesion/mixture of particles by static electricity [col. 17, lines 11-20]. One of ordinary skill in the art would have made the apparatus using a conductive material, including the suction unit, to allow an easy medium for charges to flow through in order to have removed the static charges created because of friction to prevent electrostatic shock from forming and storing in the apparatus and potentially harming personnel. Therefore, one of ordinary skill in the art at the time the invention was made would have modified the holder suction unit of '412 to have had a conductive portion and have it be

grounded in order to have prevented static electricity charges from being built up within the apparatus to have prevented adhesion/mixture of particles by static electricity.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GEORGE D. BOZADJIAN whose telephone number is (571) 270-1871. The examiner can normally be reached on M-F 8:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael E. Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Barr/
Supervisory Patent Examiner, Art Unit 1792

/G. D. B./
Examiner, Art Unit 1792
GDB